

**IN THE CLAIMS:**

Please amend claims 1, 5, 8 and 12 as follows. Please add new claims 14-15 as follows.

A detailed listing of all claims is as follows.

Claim 1 (Currently Amended): A process of forming opto-via holes, comprising:  
forming a plurality of via holes ~~[[on]]~~ in a plurality of copper clad laminates using a drill;  
plating an inner wall of each of the ~~via hole~~ holes;  
exposing and etching plated portions of an upper side and a lower side of each copper clad laminate to form a circuit pattern on the upper and lower ~~[[side]]~~ sides of the copper clad laminate;  
layering the patterned copper clad laminates on each other using an insulating resin adhesive, the insulating resin filling a space between the copper clad laminates and a portion of the via holes; and  
removing the insulating resin adhesive from the predetermined via holes to form opto-via holes.

Claim 2 (Original): The process as set forth in claim 1, wherein the opto-via holes comprise electric-via holes and opto-via holes.

Claim 3 (Original): The process as set forth in claim 1, wherein the opto-via holes are formed by a CO<sub>2</sub> laser beam or a mechanical bit in the removing step.

Claim 4 (Original): The process as set forth in claim 1, wherein an epoxy resin with 95% or more light transmissivity is filled in the opto-via holes.

Claim 5 (Currently Amended): A process of forming opto-via holes for optical waveguides, comprising:

forming a first circuit patterns pattern on a plurality of first copper clad laminates, respectively laminates, each of said first copper clad laminates laminates including an insulating layer and copper-clad layers coated on an upper side and a lower side of the insulating layer;

firstly layering copper layers on the first patterned copper clad laminates on each other laminates using an adhesive;

firstly drilling a plurality of electric- and first opto-via holes on desired positions of each of in the first layered patterned copper clad laminates laminates;

plating inner walls of the firstly drilled electric- and first opto-via holes;

exposing and etching plated portions of an upper side and a lower side of each of the first layered copper clad laminates laminates to form a second circuit pattern on the upper and lower side sides of each of the first layered copper clad laminates laminates; and

secondly drilling a plurality of second opto-via holes on each of in the first layered copper clad laminates laminates after the second circuit pattern is formed on the upper and lower sides of the first layered copper clad laminates.

Claim 6 (Original): The process as set forth in claim 5, further comprising forming a stepped part in the vicinity of each of the first and second opto-via holes and attaching an optical waveguide to the stepped part.

Claim 7 (Original): The process as set forth in claim 5, wherein an epoxy resin with 95% or more light transmissivity is filled in the first and second opto-via holes.

Claim 8 (Currently Amended): A printed circuit board with opto-via holes for optical waveguides, comprising:

- a plurality of copper clad laminates with a plurality of via holes formed by a drill;
- a plated layer formed on an inner wall of each of the via holes;
- a circuit pattern layer formed by exposing and etching plated portions on an upper side and a lower side of each of the copper clad laminates;
- an insulating resin adhesive used to layer the patterned copper clad laminates on each other;
- a plurality of opto-via holes formed by removing the insulating resin adhesive from the via holes; and
- an optical waveguide positioned such that an optical signal through each of the opto-via holes can be obtained.

Claim 9 (Original): The printed circuit board as set forth in claim 8, wherein the opto-via holes comprise electric-via holes and opto-via holes.

Claim 10 (Original): The printed circuit board as set forth in claim 8, wherein the opto-via holes are formed by a CO<sub>2</sub> laser beam or a mechanical bit.

Claim 11 (Original): The printed circuit board as set forth in claim 8, wherein an epoxy resin with 95% or more light transmissivity is filled in the opto-via holes.

Claim 12 (Currently Amended): A printed circuit board with opto-via holes for optical waveguides, comprising:

a ~~plurality of~~ first copper clad ~~laminates~~ laminates with an insulating layer and copper layers coated on an upper side and a lower side of the insulating layer, ~~each of said~~ first copper clad ~~laminates~~ laminates including a circuit pattern formed thereon;

an adhesive used to ~~firstly~~ layer copper layers on the first ~~patterned~~ copper clad ~~laminates~~ laminates ~~on each other~~;

a plurality of electric-via holes formed by ~~firstly~~ drilling ~~desired points on each of the~~ first layered copper clad ~~laminates~~ laminates;

a plurality of first opto-via holes formed at the same time as the drilling of the electric-via holes;

a plated layer formed on an inner wall of each of the electric-via holes and the first opto-via holes;

a first circuit pattern layer formed by exposing and etching the plated portions on an upper side and a lower side ~~of each of the~~ first layered copper clad ~~laminates~~ laminates;

a plurality of second opto-via holes formed by ~~secondly~~ drilling desired points on ~~each of the~~ first layered copper clad ~~laminates~~ laminates after the first circuit pattern layer is formed; and

an optical waveguide positioned such that an optical signal can be obtained through each of the first and second opto-via holes.

Claim 13 (Original): The printed circuit board as set forth in claim 12, wherein an epoxy resin with 95% or more light transmissivity is filled in the second opto-via holes.

Claim 14 (New): The process as set forth in claim 5, further comprising:  
forming a plurality of second via holes in a plurality of second copper clad laminates using a drill;  
plating an inner wall of each of the second via holes;  
exposing and etching plated portions of an upper side and a lower side of each of the second copper clad laminates to form a third circuit pattern on the upper and lower sides of the second copper clad laminates;  
layering the second patterned copper clad laminates on each other using an insulating resin adhesive, the insulating resin filling a space between the second copper clad laminates and a portion of the second via holes;  
removing the insulating resin adhesive from the second via holes to form third opto-via holes in the second layered copper clad laminates; and  
layering the first layered copper clad laminate on the second layered copper clad laminates after the third opto-via holes are formed.

Claim 15 (New): The printed circuit board as set forth in claim 12, further comprising:  
a plurality of second copper clad laminates with a plurality of second via holes formed by a drill;  
a second plated layer formed on an inner wall of each of the second via holes;

a second circuit pattern layer formed by exposing and etching plated portions on an upper side and a lower side of each of the second copper clad laminates;

an insulating resin adhesive used to layer the second patterned copper clad laminates on each other; and

a plurality of third opto-via holes formed in the second layered copper clad laminates by removing the insulating resin adhesive from the second via holes, the second layered copper clad laminates being layered on the first layered copper clad laminate after the third opto-via holes are formed.